



GENERAL DESCRIPTION 功能叙述

The M5003 is CMOS chip design for Electro-luminescence Lamp (EL) to light has independent circuit to control switching and EL driver frequency circuit, The switching frequency is decided by CKX, If OSC connect a resistor to VDD, or connect a capacitor to VSS the switching frequency can be adjusted. Delay function can be implement if ON connect a capacitor to VSS. The time of delay is decided by the value of capacitor.

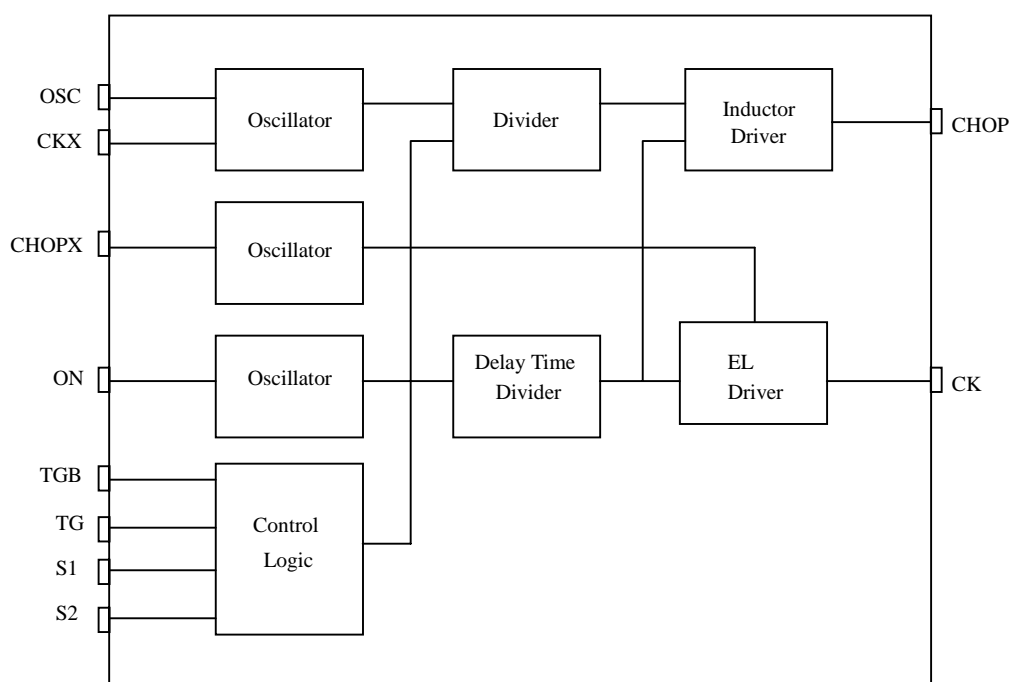
FEATURES 产品特长

- DC to AC conversion
- Built-in RC oscillator
- Two trigger inputs
TG : active High
TGB : active Low
- Adjustable EL driver frequency by CKX
- Adjustable Switching frequency by CHOPX

APPLICATIONS 产品应用

- EL display

BLOCK DIAGRAM 功能方块图



*All specs and applications shown above subject to change without prior notice.

(以上电路及规格仅供参考,本公司得径行修正)



EL LAMP DRIVER IC

ABSOLUTE MAXIMUM RATING

(TA=25°C)

| Parameter | Rating | Unit |
|-----------------------|---------------------------|------|
| Supply Voltage | -0.3 to 5.0 | V |
| Input Voltage | -0.2~V _{DD} +0.2 | V |
| Operating Temperature | -20 to 75 | °C |
| Storage Temperature | -40 to 90 | °C |

ELECTRICAL CHARACTERISTICS

| Characteristics | Sym. | Min. | Typ. | Max. | Unit | Conditions |
|----------------------|-------------------|------|------|------|------|------------------------|
| Operating Voltage | V _{DD} | — | 3 | 3.5 | V | |
| Operating Current | I _{OP} | — | 0.1 | 0.5 | mA | No load |
| Quiescent Current | I _{SB} | — | 1 | 5 | μ A | |
| Driving Current | I _{OL} | — | 10 | — | μ A | @V _{DS} =0.5V |
| | I _{OH} | — | 100 | — | | @V _{OH} =2.5V |
| CK Frequency | F _{CK} | — | 400 | — | Hz | ± 30% TOL. |
| CHOP Frequency | F _{CHOP} | — | 16 | — | KHz | ± 30% TOL. |
| Oscillator Frequency | F _{OSC} | 0 | 25 | 60 | °C | External ± 30% |

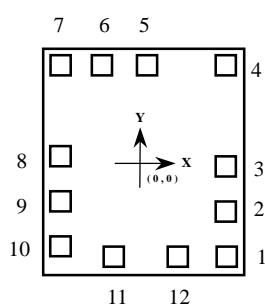
PIN DESCRIPTION

| Pad Name | Description |
|----------|---|
| VDD | Positive power supply |
| TG | Trigger input active at High |
| ON | Delay option pin, connect cap to VSS |
| OSC | Switching freq adjust pin, connect R to VDD |
| CHOPX | Switching freq adjust pin, connect R to VSS |
| CKX | EL freq adjust pin, connect cap to VSS |
| S2 | EL driving frequency select pin |
| S1 | EL driving frequency select pin |
| VSS | Negative power supply |
| TGB | Trigger input active at Low |
| CK | DC to AC converter output |
| CHOP | DC to AC converter output |



EL LAMP DRIVER IC

PAD ASSIGNMENT & POSITION



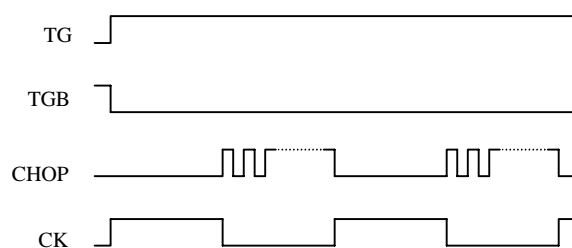
UNIT : um

| No. | NAME | X | Y |
|-----|-------|------|------|
| 1 | VDD | 429 | -488 |
| 2 | TG | 429 | -263 |
| 3 | ON | 429 | -30 |
| 4 | OSC | 429 | 490 |
| 5 | CKX | 13 | 490 |
| 6 | CHOPX | -220 | 490 |
| 7 | S2 | -430 | 490 |
| 8 | S1 | -430 | 14 |
| 9 | VSS | -430 | -219 |
| 10 | TGB | -430 | -452 |
| 11 | CK | -164 | -488 |
| 12 | CHOP | 172 | -488 |

* CHIP SIZE ~ 1.3 x 1.5 mm²

* IC substrate should be connected to VDD in PCB(PCB 上 IC 底座必須接 VDD)

TIMING WAVEFORM



EL DRIVER FREQUENCY SELECT

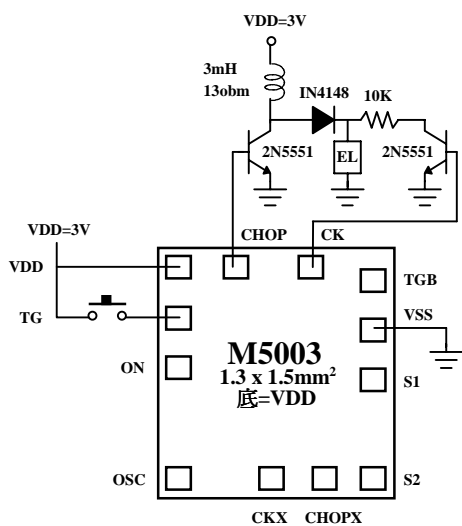
| S1 | S2 | CK (@3V) | CK (@1.5V) |
|-----|-----|------------|--------------|
| X | X | 2K Hz | 500 Hz |
| X | VSS | 1K Hz | 250 Hz |
| VSS | X | 4K Hz | 1K Hz |
| VSS | VSS | 500 Hz | 125 Hz |



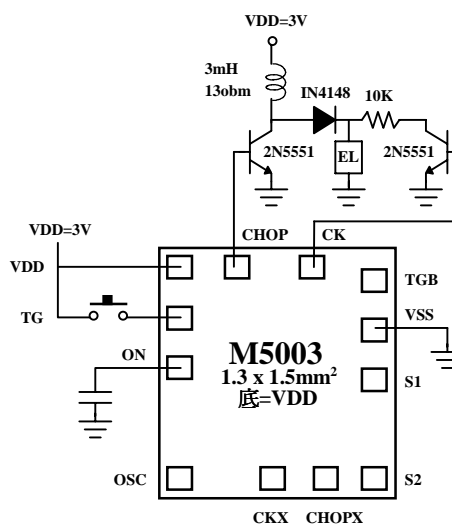
EL LAMP DRIVER IC

APPLICATION DIAGRAM 参考电路图

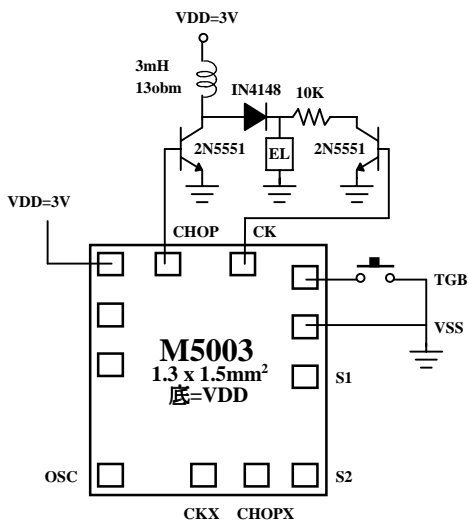
(1) Without delay using TG trigger



(3) With delay using TG trigger



(2) Without delay using TGB trigger



(1) With delay, and adjust EL, switching freq.

